

3D Digital Documentation Summit In Architecture & Engineering, Events, Featured, Historic Landscapes, Materials Conservation, Training

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Title of Paper: Documenting National and World Heritage Sites: The need to integrate Digital Documentation and 3D Scanning with Traditional Hand Measuring techniques.

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Why: To digitally document and assess the conservation needs of National and World Heritage Sites.

Where or Context: National and World Heritage sites like the Mughal Tombs in India and the Roman Forum, Rome, Italy.

When: Documentation done in 2008, 2009, 2010 and 2012 using techniques like 3D Scanning, Photogrammetry, Gigapan, High Dynamic Range photography (HDR) and traditional hand measuring in accordance with the Historic American Building Survey (HABS).

Effectiveness: results and assessment of the approach: By combining the best attributes of the HABS process with the latest techniques in digital technology, the author proposes a holistic diagnostic process for both building recording and conditions assessment.

Lessons learned: Traditional hand measuring and new digital means of documentation need to work hand in hand to create the best resourceful information for conservation of heritage sites.

Abstract:

For the past fifteen years, digital documentation technology of historic sites and resources has developed into a powerful tool and its use has become widespread in historic preservation. Data scanning has been touted as being both precise and time saving allowing three dimensional modeling to be readily available for the designer, historian and preservationist. But does technology completely replace traditional and more labor intensive methods for recording historic resources? Or is there still a need to continue traditional hand measuring methods that are irreplaceable? When it comes to documentation of historic buildings, be it World Heritage sites like the Taj Mahal Tomb in India or the Roman Forum, Rome, Italy digital documentation can be of great help in understanding the context of the place from remote locations. Although digital methods have enabled preservation professionals to achieve greater accuracy in documentation, traditional methods, such as hand measuring, is still the only way a historic resource can be understood by the preservation professional and the overall condition of the resource

can be verified. This paper will discuss ways in which digital documentation methods can be integrated with traditional hand measuring methods. Four different methods of digital three-dimensional building documentation-- 3D Scanning, Photogrammetry, Gigapan and High Dynamic Range Photography--will be presented. The paper also discusses techniques like Google mapping combined with physical study of the site that helped the team find the long lost Taj Ganj (original market place connected to Taj). The author will present her ideas on how these techniques can be integrated with traditional hand measuring in accordance with the Historic American Building Survey (HABS).

In order to develop assessments aimed at acquiring accurate and pertinent information about historic resources, the author proposed digital-manual method of building documentation methodology attempts to produce accurate information of the geometry of the historic resource and, simultaneously, quantifying the state of repair of the material assemblies of the artifact. This approach combines essential information of the resource—documenting building geometry and assessing areas of material conservation. All of which can lead to more efficient and accurate historic resource documentation.

Biography:

Krupali Krusche is presently working as an Assistant Professor at the University of Notre Dame where she teaches architectural design, historic preservation and structural design. In 2006, she along with Prof. John Stamper started the Historic Preservation Concentration, which offers a wide range of courses including one on World Heritage Documentation and Research.

In 2007, she started the DHARMA (Digital Historic Architectural Research and Material Analysis) research team that is specializing in 3D documentation of World Heritage Sites. In summer 2008, the D.H.A.R.M.A. team spent four weeks in India documenting some of the country's historic monuments including the Taj Mahal. In summer of 2010, the team spent research time digitally documenting the Roman Forum, Rome, Italy. In 2012, she is continuing both projects of documenting these sites to create international exhibits of their work.

She received a Merle D. Blue Excellence in Humanities Award from the Northern Indiana Center for History for her work in documenting historic sites in Indiana.

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